MATH 211 S05: Ordinary Differential Equations & Linear Algebra

Spring Semester 2022

(last edited on April 12, 2022)

Contact Information

Instructor: Dr. Lawrence Mouillé (pronounced *"moo-yay"*) (pronouns: he / him)

Email: mouille@rice.edu

Office hours: Tuesdays, 4 - 5 pm CT (virtual) through Zoom
Thursdays, 12:15 - 1:05 pm CT (dual mode) in KWG 100 or through Zoom

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Course Overview

Course format: Lectures will be online (synchronous) throughout the semester. Recordings will be made available for those who cannot attend live. Homework and quizzes will be administered and submitted online. Exams are planned to be in-person.

Subject matter: Study of ordinary differential equations (e.g., solutions to separable and linear first-order equations and to higher-order linear equations with constant coefficients, the properties of solutions to differential equations, and numerical solution methods) and linear algebra (e.g., vector spaces and solutions to algebraic linear equations, dimension, eigenvalues, and eigenvectors of a matrix), as well as the application of linear algebra to first-order systems of differential equations and the qualitative theory of nonlinear systems and phase portraits.

Textbook: *Differential Equations & Linear Algebra*; Farlow, Hall, McDill, & West; Pearson Education, Inc.; 2nd edition; 2007.

Prerequisites: A working knowledge of differentiation and integration. MATH 101 and 102 are sufficient preparation.

Drop-Back Provision

The Math department has a special dispensation from the Registrar's Office, because we want you to try to take the most advanced Math class that you are prepared for. If you find yourself feeling like you are not prepared to take MATH 211 because your background in Calculus is not strong enough, then you can "drop-back" to Math 102 as late as the **Friday of the 7th week of class**.

Class Meetings

Meeting times: MWF 2:00 – 2:50 pm Central Time

Course Zoom Meeting Room Information: **Meeting ID:** 950 5217 7019
Passcode: math211

Online Etiquette: Be sure to mute yourself when you are not speaking in order to reduce background noise. If you have access to a headset, they typically pick up less background noise than microphones integrated in most devices. Arrange a quiet location for yourself while you are in class. Remember that, although you are online, you are still in a classroom and you should dress appropriately. The instructor and other students may be able to see you more clearly than they would in a physical classroom. The instructor reserves the right to record each online lecture, discussion section, and office hour for record-keeping purposes.

Exams

There will be two midterm exams and one final exam. All exams are planned to be in-person.

The first midterm exam will take place on **Wednesday, February 16th at 7:00 - 9:00 pm Central Time in HRZ AMP**. The second midterm exam will be on **Wednesday, March 30th at 7:00 - 9:00 pm Central Time in HRZ AMP**. The final exam time will be **on Saturday, April 30th at 9:00 am - 12:00 pm Central Time in DCH 1075.**.

Quizzes

Weekly quizzes will be assigned online through Gradescope. Quizzes will be timed and will only be available during specified time windows. You will be expected to work alone on quizzes. Receiving aid during any quiz will be considered a violation of the Rice Honor Code.

Homework

Homework assignments will come in two forms: online WebWork assignments, and online written homework assignments.

WebWork is a free, open-source, online homework system for math and science courses. I will post weekly homework assignments on WebWork.

In addition, I will assign a few problems each week as part of "written homework." Solutions to these problems should be written up neatly (hand-written or typed) and submitted on Gradescope.

Collaboration on homework is **encouraged**, but don't just copy off of your peers. Learn from them when you get stuck, and explain your thinking when they get stuck.

Grading Procedure

The aim in Math 211 is that letter grades should not depend on whether a student's section is an "easy" or "hard" section. To that end, when computing final course grades, a student's exam scores are normalized against exam scores of all students in Math 211 this semester (not just those in this section), while a student's non-exam scores are normalized against the non-exam scores of students in this section. In particular, students should not assume that having higher raw scores on homework than on exams will necessarily increase their final letter grade.

Exam grades will contribute to the final course grades as a weighted average exam grade. The weighted average exam grade will be the **maximum** of the following three values:

- `0.3125 (midterm 1) + 0.3125 (midterm 2) + 0.3750 (final)`
- `0.2500 (midterm 1) + 0.3125 (midterm 2) + 0.4375 (final)`
- `0.3125 (midterm 1) + 0.2500 (midterm 2) + 0.4375 (final)`

The instructors and Calculus Coordinator will meet after the final exams are graded to calculate each individual's weighted average exam grade, and these grades will be used to determine the grade distribution across all sections of MATH 211. The Calculus Coordinator will then inform me of how many students in this section would earn each letter grade if only the weighted average exam score were considered.

I will then calculate your final course grade using the following scheme:

Assignment	Percentage of final grade
Weighted Average Exam Grade	63 %
Quizzes	14 %
Written Homework	14 %
WebWork	9 %

I will use the resulting scores to determine the grade distribution in this section. I am only allowed to deviate from the grade distribution provided by the Calculus Coordinator by a small amount.

Discussion, Questions, & Collaboration

We will use Piazza to discuss material from the course, ask and answer questions, and collaborate on practice problems. If you have any questions related to the course (e.g. topics from lecture, homework, the textbook, etc.), rather than emailing me, please post the question on the course Piazza page.

Rice Honor Code

In this course, all students will be held to the standards of the Rice Honor Code, a code that you pledged to honor when you matriculated at this institution. If you are unfamiliar with the details of this code and how it is administered, you should consult the Honor System Handbook at http://honor.rice.edu/honor-system-handbook/. This handbook outlines the University's expectations for the integrity of your academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process.

Disability Resource Center

If you have a documented disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with the Disability Resource Center (Allen Center, Room 111 / adarice@rice.edu / x5841) to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs.

Title IX statement

Sexual Misconduct in Online Course Communities Rice's Sexual Misconduct Policy applies in all Rice online courses. Examples of sexual misconduct behavior in an online environment are text-based or image-based discussion posts of a sexual nature that are offensive or repetitive, unwelcome contact in or outside the course, etc. If you experience sexual misconduct in this course or outside of it, contact your instructor, and/or the Office of Sexual Violence Prevention and Title IX Support via email titleixsupport@rice.edu or call (713) 348-3311.

Statement of Conduct

The Dept. of Mathematics supports an inclusive learning environment where diversity and individual differences are understood, respected, appreciated, and recognized as a source of strength. At the most basic level, we expect all participants in mathematics courses to treat each other and their instructors with courtesy and respect, and to adhere to the mathematics department standards of collegiality, respect, and sensitivity (mathweb.rice.edu/department-statement-collegiality-respect-and-sensitivity) as well as the Rice Student Code of Conduct. Discrimination, harassment, and bullying will not be tolerated. If you think you have experienced or witnessed unprofessional or antagonistic behavior, then the matter should be brought to the attention of the instructor and/or department chair. The Ombudsperson is also available as an intermediate, informal option, and contacting them will not necessarily trigger a formal inquiry. See the above website for details on how to contact the Ombudsperson.